

eConnect™ PDU epSerial Software User's Manual

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PRODUCTS**

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INTRODUCTION

This document is the User's Manual for CPI eConnect™ PDU epSerial Software.

eConnect™ PDU epSerial Software User Manual

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Nomenclature

PDU: eConnect Power Distribution Unit product

Socket/Receptacle/Outlet: Electrical output port

Primary PDU: PDUs can be linked to share one network connection. When PDUs are linked together, the Primary Role indicates the PDU that is attached to the monitoring computer and is the beginning of a daisy chain of up to 20 linked PDUs

Secondary PDU: Role assigned to a PDU that is 1) part of a PDU daisy chain – a linked PDU – attached to a primary PDU, or 2) a stand-alone operating PDU.

SOFTWARE OVERVIEW

The epSerial application is a Microsoft Windows based application that can be used to configure, monitor and control a single PDU or linked PDUs via the Serial port on the PDU.

The epSerial application is available for download on the CPI Website. A Serial Setup Cable (CPI P/N 35941-131, ordered separately) is required to attached the PDU to the computer running the epSerial application.

epSerial Software Features:

- Access, monitor and control up to 20 linked PDUs using a single direct serial cable connection to a computer running the epSerial software application.
- Measure and monitor voltage, current (A), power (kW), power factor and energy (kilowatt-hours) for each branch circuit on each PDU; the sum of all power used by PDU loads.
- Measure and monitor voltage, current (A) power (kW) and energy (kilowatt-hours) on individual outlets on Monitored Pro and Switched Pro models; the sum of all power used by specific PDU loads.
- Turn outlets on or off and cycle power remotely on Switched and Switched Pro models; set power on and cycle delays.
- Set alarm warning thresholds for each branch on all models; set alarm thresholds for each outlet on Monitored Pro and Switched Pro models.
- Use as bench software to complete detailed IP setup before the PDU is attached to and monitored though a production Ethernet network; includes setup of data and alarm logging and email notifications via an SMTP server functions.
- Use as bench software to complete SNMP setup; allows designation of separate Query and Trap Ports and assignment of separate Access Hosts and Trap Hosts IPs (three each).

INSTALLATION

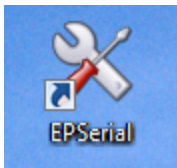
The epSerial software application is available on the CPI website and link below:

<http://www.chatsworth.com/Support-and-Downloads/Downloads/Software/>

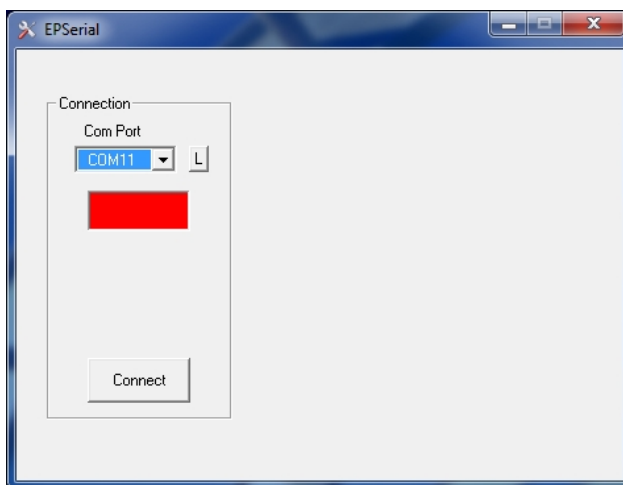
1. In the download table, Under the eConnect Power Distribution Units sub heading, select the epSerial Application for download
2. Download the epSerial.zip
3. Unzip to C:/CPI-app folder. The zip file includes three files: epSerial.exe, epdigs.dll and README.txt.
4. Follow the instructions in the README.txt file to install the EPSerial.exe application.
5. Create a shortcut and place it on the desktop.
6. Before using the application, connect the serial cable (P/N 35941-131, ordered separately) to the serial port of a computer and the serial port In of the PDU. Connect the cable to the Primary PDU when several PDUs are linked. If your computer does not have a Serial port then use a USB-Serial Adapter (not included with serial cable, ordered separately). See Appendix A for more details.

Running epSerial application:

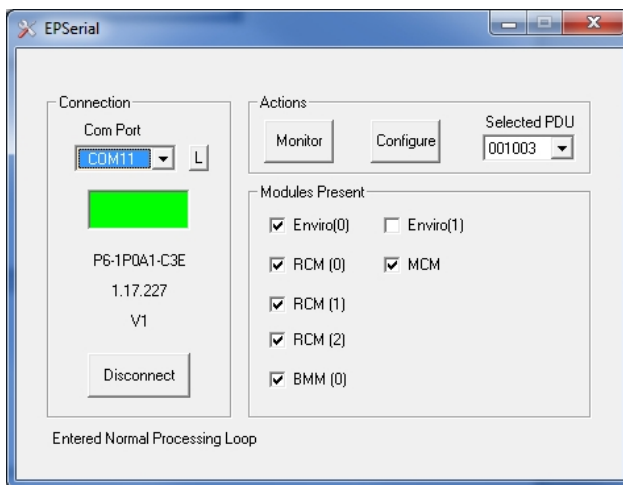
Double click the epSerial Icon on the Desktop



When the application opens (see below, left), select the L button next to the Com Port combo box to enter the Login Credentials (below, right). The default is admin, admin. Click OK.



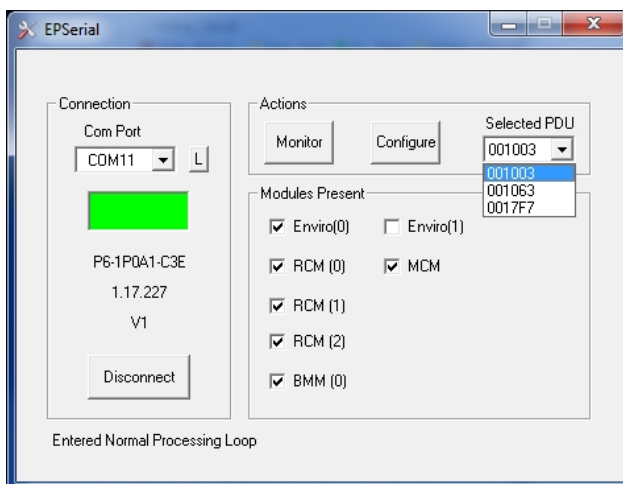
Select the appropriate COM Port and click on the Connect button (see above, left). The main screen (below) will display. Serial port setting on the computer must be: 9600, 8 bit, no parity, 1 stop bit



Main screen

Selecting A PDU

The Serial Application will connect to the attached PDU. If the PDU is linked to other PDUs using the PDU linking/daisy chain feature, the main screen will include a Selected PDU combo box in the Actions area. See Appendix A for more information on linking PDUs.



Each PDU is assigned a different number. The first PDU in the list is the primary PDU. Linked PDUs are listed in order of attachment to the primary PDU. To connect to another PDU, select the PDU from the list and click Connect.

Monitoring A PDU

To display the current, temperature, humidity and port status, click on the Monitor button. Depending on the PDU model the appropriate info will be displayed.

On single-phase units, outlets are divided into two branch groups.

Below is a sample of the display for a three-phase Switched Pro PDU (P/N P6-1P0A1).

PDU Status [001003 : PDU Name 1]

Software Version 1.17.227 Temperature 70.8F *****
 Model P6-1P0A1-C3E Humidity 56.5% *****
 Alarm State None

BranchX				
OV	0.0A	0.00kW	0.00	
Port #	I(A)	P(kW)	Control	
X1	0.0	0.00	☒ R	
X2	0.0	0.00	☒ R	
X3	0.0	0.00	☒ R	
X4	0.0	0.00	☒ R	
X13	0.0	0.00	☒ R	
X14	0.0	0.00	☒ R	
X15	0.0	0.00	☒ R	
X16	0.0	0.00	☒ R	

BranchY				
OV	0.0A	0.00kW	0.00	
Port #	I(A)	P(kW)	Control	
Y5	0.0	0.00	☒ R	
Y6	0.0	0.00	☒ R	
Y7	0.0	0.00	☒ R	
Y8	0.0	0.00	☒ R	
Y17	0.0	0.00	☒ R	
Y18	0.0	0.00	☒ R	
Y19	0.0	0.00	☒ R	
Y20	0.0	0.00	☒ R	

BranchZ				
OV	0.0A	0.00kW	0.00	
Port #	I(A)	P(kW)	Control	
Z9	0.0	0.00	☒ R	
Z10	0.0	0.00	☒ R	
Z11	0.0	0.00	☒ R	
Z12	0.0	0.00	☒ R	
Z21	0.0	0.00	☒ R	
Z22	0.0	0.00	☒ R	
Z23	0.0	0.00	☒ R	
Z24	0.0	0.00	☒ R	

Energy OK

If Environmental Probes (P/N 17761-001 or 17761-003, sold separately) are attached to the PDU, Temperature and Humidity will be displayed at the top of the screen.

Individual outlet (port) values are only listed on Monitored Pro and Switched Pro models.

From the Status screen, you can view Voltage, Current, Power (kW) and Power Factor values. On Switched or Switched Pro PDUs, you can also turn outlets on or off (Control check boxes) and reset/cycle power (with R buttons).

Click on the Energy button at the bottom of the Status screen to see energy consumption in kilowatt-hours (kWh). This is the sum of power used since the last clear, reboot or reset.

Below is a sample of the Energy display for a three-phase Switch Pro PDU (P/N P6-1F0A1). No energy use has been recorded yet.

Energy Status [001003 : PDU Name 1]

BranchX		BranchY		BranchZ	
	Energy		Energy		Energy
Total	0	Total	0	Total	0
X1	0	Y5	0	Z9	0
X2	0	Y6	0	Z10	0
X3	0	Y7	0	Z11	0
X4	0	Y8	0	Z12	0
X13	0	Y17	0	Z21	0
X14	0	Y18	0	Z22	0
X15	0	Y19	0	Z23	0
X16	0	Y20	0	Z24	0

☒ Deca Watt-sec
 ☐ Watt-hour
 ☐ Kw-hour

On single-phase units, outlets are divided into two branch groups. Individual outlet (port) values are only listed on Monitored Pro and Switched Pro models.

The Clear button will reset values to zero.

Click on OK button to go back to the Main Menu.

PDU Configuration

To configure the PDU, select a PDU from the list and click on Configure button. Configure the primary PDU first (the first PDU listed in the Selected PDU combo box). Network Settings are setup on the Primary PDU only.

EPSerial

Connection

Com Port: COM11 [L]

P6-1P0A1-C3E
1.17.227
V1

Entered Normal Processing Loop

Actions

Selected PDU: 001003

Modules Present:

☒ Enviro(0)
 ☐ Enviro(1)

☒ RCM (0)
 ☒ MCM

☒ RCM (1)

☒ RCM (2)

☒ BMM (0)

The Basic Configuration screen (next page) will display.

Basic Configuration [001003 : PDU Name 1]

PDU
PDU Name: PDU Description:

Users
Name1: Password1: Permission1:
Name2: Password2: Permission2:
Name3: Password3: Permission3:
Name4: Password4: Permission4:

Notifications (SNMP/SEMA)
Fixed Interval (secs): Alarm Interval (secs): Load Difference (A):
Display Brightness: Display Timeout(min): Login Timeout(min):

PDU Options
Input Top ☐ Celsius ☐ Enable Web ☐ Primary PDU ☐ Disable Local Auth ☐

Environmental Limits

	Maximum	Minimum	Warn High	Warn Low	Probe Name
Probe 1 Temp (F):					
Probe 1 Humidity (%):					
Probe 2 Temp (F):					
Probe 2 Humidity (%):					

Branch A Limits

	Maximum	Minimum	Warn High	Warn Low
Voltage:				
Current:				

Branch B Limits

	Maximum	Minimum	Warn High	Warn Low
Voltage:				
Current:				

Branch C Limits

	Maximum	Minimum	Warn High	Warn Low
Voltage:				
Current:				

Other Configurations
Network Receptacles
Logging Groups

Set Defaults Clear
Load Save
Cancel

The Basic Configuration screen on your model may vary. There may be one, two or three Branch A/B/C Limits boxes (lower left corner) and the Receptacles and Groups buttons under Other Configurations (lower right side) are not available on Monitored models.

Click on the Load button to get settings from the PDU.

Enter/change settings as required, or use Set Defaults to reset PDU to factory settings. See the next page for field descriptions.

Click Save to change/update settings.

PDU:

- PDU Name and Description are unique user assigned values for the PDU.

Users:

- Local User Logins, provides access to PDU using software.
- Permission is 0 to disable, 3 for viewer, 5 for control and 7 for admin.

Notifications:

- Fixed Interval: How often measurements are sent via SNMP Trap.
- Alarm Interval: Amount of time before alarm is sent via SNMP Trap after alarm condition.
- Load difference: Amount of change in current that prompts intermediate SNMP Trap.

Display brightness:

- Controls the local display. 0-9, with 9 as brightest.

Display timeout:

- Controls the local display. How long display will stay on after use.

Login Timeout:

- Amount of idle time before software logs out and requires new login.

PDU Options:

- Input top – Changes local display. Flips display 180° so that it is easy to read when the PDU is mounted into the cabinet so that the power cord exist the top of the PDU.
- Celsius – Changes temperature measurements from Environmental Probe to degrees Celsius. Default setting is degrees Fahrenheit.
- Enable Web – Allows access to PDU using Ethernet connection and web browser through HTTP or
- Primary PDU – Only selected if this PDU is linked, is the first PDU in the daisy chain and is the PDU connected to the Ethernet or Serial Connection.
- Disable Local Auth – No login required for Local Display or Web. All users have view permissions.

Environmental Units:

- Probe Temperature/Humidity – enter maximum and minimum values and alarm warning thresholds in degrees Fahrenheit and percentage of relative humidity (default). For degrees Celsius (temperature), check the Celsius box under PDU options above.
- Probe Names – unique user defined name for each probe.

Branch A/B/C Units (PDU may have one, two or three branches):

- Voltage/Current – enter maximum and minimum values and alarm warning thresholds for Voltage and Current for each branch circuit on the PDU. The PDU may have one, two or three branch circuits depending on model. This example has three branch circuits.

Network Configuration

From the Basic Configuration screen, click the Network button under the Other Configurations category for the detailed Network Configuration screen. Click on Load:

Network Configuration [001003 : PDU Name 1]

IPv4 Settings
 Enable ☒ Auto IP ☐ Auto DNS ☐
 IPAddr: 192.168.123.123 NetMask: 255.255.255.0
 Gateway: 192.168.123.1 DNS1: 0.0.0.0
 DNS2: 0.0.0.0

IPv6 Settings
 Enable ☒ Global Address ☐ Auto IP ☐ Auto DNS ☐
 IPAddr: :: NetMask: 0
 Gateway: :: DNS1: ::
 DNS2: ::

Services
 Telnet ☒ Port: 23 SSH ☒ Port: 22 HTTP ☒ Port: 80 HTTPS ☒ Port: 443

SNMP
 Enable ☒ Ports: QRY: 161 TRAP: 162
 Security Level: V1 ☒ V2c ☐ V3-None ☐ V3-AuthNoPriv ☐ V3-AuthPriv ☐
 Access Hosts: Only ☐ These Hosts
 Host1: 0.0.0.0 Host2: 0.0.0.0 Host3: 0.0.0.0
 Trap Hosts: Host1: 0.0.0.0 Host2: 0.0.0.0 Host3: 0.0.0.0
 Community: Read: ***** Write: *****
 V3 Security: Authentication Password: ***** SHA ☒ MD5 ☐
 Privacy Password: ***** DES ☒ AES ☐
 USM User: Context Name: Engine ID:

SMTP
 Enable ☐ Port: 465 Server Address: Server Options: Always TLS ☐ Start TLS ☐
 E-mail Address: Username: Password: *****
 Recipient1: Recipient2: Recipient3: Test

Time Synchron
 RFC Time Server: NTP Time Server:

Radius Authentication
 Enable ☐ Server: Port: 1812 Shared Secret: *****

AD Authentication
 Enable ☐ Server: Port: 389 Domain:

SEMA
 IPv4 Addr: 192.168.123.1 IPv6 Addr: ::
 Group Name: ElBigSema Group Password: ***** Device Password: *****
 Ports: ConnListen: 2001 ConnTalk: 2002 BcastListen: 2003 BcastTalk: 2004

Clear Load Save Cancel

You can enter detailed network configuration for IP, Ports, SNMP, SMTP, Time Synchron, Radius Authentication and AD Authentication here. eConnect PDUs are not SEMA compatible at this time. Do not change SEMA settings. Click Save or Cancel if no new information was added or modified.

Receptacle Configuration

From the Basic Configuration screen, click the Receptacles button under the Other category for a detailed Receptacle/Outlet/Port Configuration screen (note that this screen is not available on Monitored PDUs which do not support per outlet monitoring and control).

Port	Name	Description	Delays (secs)			Current Limits (Amps)			
			PowerON	Reset	ON/OFF	Maximum	Minimum	WarnHigh	WarnLow
1	OutletName1	Outlet1 Description	3	5	☒	0.0	0.0	0.0	0.0
2	OutletName2	Outlet2 Description	4	5	☒	0.0	0.0	0.0	0.0
3	OutletName3	Outlet3 Description	5	5	☒	0.0	0.0	0.0	0.0
4	OutletName4	Outlet4 Description	6	5	☒	0.0	0.0	0.0	0.0
13	OutletName13	Outlet13 Description	15	5	☒	0.0	0.0	0.0	0.0
14	OutletName14	Outlet14 Description	16	5	☒	0.0	0.0	0.0	0.0
15	OutletName15	Outlet15 Description	17	5	☒	0.0	0.0	0.0	0.0
16	OutletName16	Outlet16 Description	18	5	☒	0.0	0.0	0.0	0.0

Use the Select Branch combo box in the top left corner to select the branch, corresponding outlets are listed. Outlets are also numbered and color-coded on the PDU.

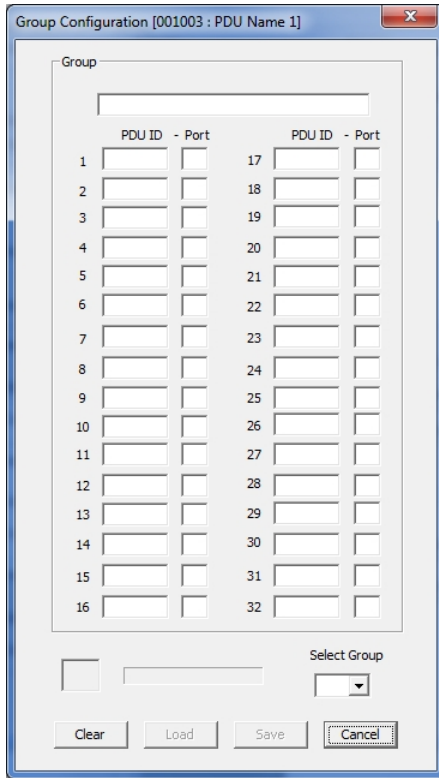
Click the Load button to load values from the PDU or enter new values.

- Name and Description – unique customer assigned values.
- Delays – (on Switched and Switched Pro models only) set per outlet power on and reset delays so that power is gradually restored to reduce inrush current.
- On/Off – turn outlet on when checked, off when not checked. Allows unused outlets to be turned off to prevent unauthorized use of power and unplanned loads.
- Current Limits – enter maximum and minimum values and alarm warning thresholds for Current for each outlet on the PDU.

Click Save. Note that this will overwrite any values that are currently set in the PDU.

Groups Configuration

From the Basic Configuration screen, click on the Groups button under the Other category for a detailed Group Configuration screen (note that this screen is not available on Monitored PDUs which do not support per outlet monitoring and control).



The image shows a 'Group Configuration' dialog box for PDU Name 1. It features a 'Group' label at the top with an adjacent text input field. Below this is a table with two columns, each headed 'PDU ID - Port'. The first column lists PDU IDs 1 through 16, and the second lists 17 through 32. Each ID is followed by a port selection checkbox. At the bottom of the dialog, there is a 'Select Group' dropdown menu, a 'Clear' button, a 'Load' button, a 'Save' button, and a 'Cancel' button.

PDU ID - Port		PDU ID - Port	
1	☐	17	☐
2	☐	18	☐
3	☐	19	☐
4	☐	20	☐
5	☐	21	☐
6	☐	22	☐
7	☐	23	☐
8	☐	24	☐
9	☐	25	☐
10	☐	26	☐
11	☐	27	☐
12	☐	28	☐
13	☐	29	☐
14	☐	30	☐
15	☐	31	☐
16	☐	32	☐

To view or modify an existing Group, use the Select Group combo box in the lower right corner to select the group and click the Load button to load values from the PDU.

To create a new Group of receptacles/outlets/ports, enter a Group name in the field at the top and the PDU ID and port number for each outlet in the group. The Group can include outlets from multiple PDUs.

- PDU ID is the unique number assigned by the EPSerial.exe software to each PDU at login. The PDU ID for each PDU is included in the header of each menu. For example: 001003 is this PDU's ID.
- Port number is the number assigned to the outlet on the PDU. See the Monitor page or Receptacle configuration tab. Outlets are also numbered on the PDUs. If PDUs are linked, you can create Groups that include outlets from multiple PDUs.

Click Save. Note that this will overwrite any values that are currently set in the PDU.

Logging Configuration

From the Basic Configuration screen, click the Logging button under the Other Configurations category for a detailed data Logging Configuration screen.

Logging Configuration [001003 : PDU Name 1]

Options

☒ Enable Logging Feature

☐ Metrics ☐ Setup Changes

☐ Recep Group ☐ Outlet Changes

☐ Alarms ☐ User Changes

☐ User Login ☐ PDU State Changes

☒ Firmware Upgrades

Local Logging

Interval minutes Full Warning Level %

External Logging

☐ Enable Log Server ☐ Auto Transfer (every 6 hrs)

Logging Server Address

Server Port

Option String

Destination Directory

User Name

Password

Activating the logging feature will keep a local record (log) of metrics, alarms, and PDU configuration changes. The log file is saved on the local memory of the primary PDU. Local memory is limited. Log files can be downloaded for archiving onto a connected client computer or server. New files will overwrite old files as local memory is filled.

- **Options** – Select Enable Logging Feature to turn logging on. Check the items that you wish to log. Metrics are unit measurements (voltage, current, power, etc.).
- **Local Logging** – Designate the interval for recording metric data. Log files are stored on the primary PDU's memory. Local memory is limited, so you can designate a warning based on percentage of use to prompt a log download.
- **External Logging** – When the PDU has an Ethernet connection, you can store log files on a server that is accessible to the PDU. Checking Auto Transfer will copy a log file to the server every six hours as long as the connection is available.
- Save settings to begin logging.

APPENDIX A: CONNECTING AND LINKING PDUS

Connect the PDU directly to a computer with the epSerial application using the Serial Setup Cable (CPI P/N 35941-131, ordered separately). The cable has an RJ45 connector on one end and a DB9 connector on the other end. Attach the RJ45 connector to the Daisy Chain In Serial Port on the PDU. Attach the DB9 connector to the computer or use an USB-to-DB9 adapter if the computer does not have a DB9 connector.



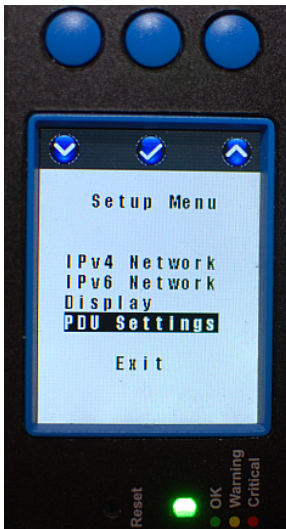
You can link (daisy chain) up to 20 PDUs together (1 Primary and 19 Secondary) and access all of the PDUs from a single Ethernet network or direct serial connection to the Primary PDU.

To link PDUs:

- Connect a standard Cat 5/6 four-pair network patch cord or network cable with RJ45 connectors from the Primary PDU's Daisy Chain Out Serial Port to the next PDU's Daisy Chain In Serial Port.



- Continue this process linking the Out Port to the In Port for additional PDUs; linking up to 20 PDUs.
- Using the setup buttons on the local display, change the Role of the primary PDU from secondary (the default) to Primary in order to view the linked PDUs using the Serial Software.



- To access linked PDUs using a Serial Connection, attach the Serial cable (P/N 35941-131, ordered separately) between the Primary PDU's Daisy Chain In Serial Port and the computer that has the epSerial software installed.
- To access linked PDUs using the built in web interface, refer to the [eConnect PDU User Manual](http://www.chatsworth.com/eConnect) available for download on <http://www.chatsworth.com/eConnect>.
- For additional assistance, contact US Tech Support: 1-800-834-4969 • techsupport@chatsworth.com.